THE ROLE OF ISOFORM DIVERSITY IN CYTOSKELETAL FUNCTIONS

Location: Cold Spring Harbor Laboratory
Date: Wednesday, April 24th through Sunday, April 28th, 1991
Expected Attendance: About 250 scientists from the U.S. and abroad

Arranged by:
Henry Epstein, Baylor College of Medicine
Donald Fischman, Cornell University Medical College
David M. Helfman, Cold Spring Harbor Laboratory

Wed. Evening	Cell Motility and Contractility I
Thurs. Morning	Cell Motility and Contractility II
Thurs. Afternoon	Poster Session
Thurs. Evening	Cell Division, Chromosome Movement and Nuclear Structure
Fri. Morning	Isoform Switching During Development and Differentiation
Fri. Afternoon	Poster Session
Fri. Evening	Pathological Aspects of Contractile and Cytoskeletal Systems
Sat. Morning	Cell-to-Cell Communication, Extracellular Matrix
Sat. Afternoon	Intracellular Trafficking and Organelle Movement
Sat. Evening	Banquet
Sun. Morning	Cell Shape and Morphogenesis

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Session 1 - Cell Motility and Contractility I.
Chairman: Ed Korn, National Institutes of Health

This session will focus on invertebrate systems. For example, considerable progress has been made in recent years concerning different isoforms of myosin (myosins I and myosins II) in *Acanthamoeba* and *Dictyostelium*. In addition, the use of molecular genetics is providing important new information about contractile systems in *C. elegans* and *Drosophila melanogaster*.

Session 2 - Cell Motility and Contractility II.
Chairman: Gunther Gerisch, Max Plank Institute for Biochemistry, Munich, West Germany

This session will highlight recent advances in understanding isoform diversity in vertebrate systems, including myofibril assembly, thin-filament of muscle vs. microfilament associated proteins of nonmuscle cells, and smooth muscle function.

Session 3 - Cell Division, Chromosome Movement and Nuclear Structure.
Chairman: William C. Earnshaw, John Hopkins University

This session will focus on nuclear-related functions of the cytoskeleton. For instance, exciting advances are being made concerning the role of cytoplasmic dynein in the movement of chromosomes during mitosis. In addition, functional properties of the kinetochore are just beginning to be elucidated.

Session 4 - Isoform Switching During Development and Differentiation.
Chairman: Elaine Fuchs, University of Chicago

Numerous developmental systems have been characterized that involve changes in specific cytoskeletal isoforms such as myogenesis, keratinization of the skin, and neuronal morphogenesis. How these changes in isoform expression contribute to the differentiated phenotype will be discussed.

Session 5 - Pathological Aspects of Contractile and Cytoskeletal Systems.
Chairman: Michael L. Shelanski, Columbia University

Changes in the expression of cytoskeletal and contractile protein isoforms have been described in a number of pathological situations. For example, changes in tropomyosin and intermediate filament protein isoforms have been found in different neoplastic and transformed cells. In addition, changes in extracellular matrix proteins and cell adhesion molecules have been associated with the growth and metastatic potential of tumor cells. Alterations in isoform expression have also been described in cardiac hypertrophy, Alzheimer's disease, and Duchenne muscular dystrophy. The functional significance of these changes will be discussed in this session.

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Session 6 - Cell-to-Cell Communication, Extracellular Matrix.
Chairman: Keith Burridge, University of North Carolina

This session focuses on cell-to-cell interactions with emphasis on cell adhesion molecules such as the cadherins, NCAMs, and integrins. In addition, the role of different extracellular matrix proteins will be presented such as fibronectins, laminins, collagen and elastin. Emphasis will be placed on the interaction of the cytoskeleton with cell adhesion molecules and extracellular matrix proteins.

Session 7 - Intracellular Trafficking and Organelle Movement.
Chairman: Richard Vallee, Worcester Foundation

This session will cover topics such as the interaction of microtubules with intracellular organelles, axonal transport, transport vesicles, actin-based associations (e.g., cytoplasmic streaming), and synaptic vesicle transport.

Session 8 - Cell Shape and Morphogenesis.
Chairman: Mark Mooseker, Yale University

Since differences in cell shape is determined to a large extent by the organization of the cytoskeleton, this session will focus on the relationship between cell shape and the expression of different protein isoforms in various cell types.

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